What does energy mean for people? Perspectives on renovation and energy retrofit among Swedish tenants

Downloaded from: https://research.chalmers.se, 2023-05-05 11:53 UTC

Citation for the original published paper (version of record):

Femenias, P., Knutsson, A., Jonsdotter, L. (2020). What does energy mean for people? Perspectives on renovation and energy retrofit among Swedish
tenants. IOP Conference Series: Earth and Environmental Science, 588(5).
http://dx.doi.org/10.1088/1755-1315/588/5/052066

N.B. When citing this work, cite the original published paper.

research.chalmers.se offers the possibility of retrieving research publications produced at Chalmers University of Technology.
It covers all kind of research output: articles, dissertations, conference papers, reports etc. since 2004.
research.chalmers.se is administrated and maintained by Chalmers Library

(article starts on next page)

IOP Conference Series: Earth and Environmental Science

PAPER • **OPEN ACCESS**

What does energy mean for people? Perspectives on renovation and energy retrofit among Swedish tenants

To cite this article: P. Femenías *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **588** 052066

View the article online for updates and enhancements.

This content was downloaded from IP address 129.16.140.204 on 07/01/2021 at 08:58

What does energy mean for people? Perspectives on renovation and energy retrofit among Swedish tenants

P. Femenías[1], A. Knutsson[1] and L. Jonsdotter[1]

[1] Department of Architecture and Civil Engineering. Chalmers University of Technology, SE-41296 Gothenburg, Sweden
[2] Author to whom any correspondence should be addressed: paula.femenias@chalmers.se

Abstract. The study reports from an on-going study of tenants' view on energy retrofit. The first results, which are based on 27 qualitative interviews show a generally positive attitude to energy saving and environmental protection. However, many tenants are not familiar with the link between energy use and energy retrofit, and the idea of energy saving might oppose to the actual willingness to contribute. One important lesson from these preliminary results is that the project owners have overlooked the importance of informing the tenants about the energy retrofit and what measures that are implemented. This leaves the tenants to their own interpretation of the matter and in some examples a negative image is created. In order to transition from the idea of personal benefit from energy retrofit to a larger responsibility and willingness to participate to society at large, we suggest that tenants are invited to discuss energy retrofit and that they are properly informed about implemented energy saving measures.

1. Introduction, aim and method

The Directive of the Energy Performance of Buildings (EPBD, Directive 2002/91/EC), and more recent updates of the directive (EPBD, Directive 2012/27/EU and Directive 2018/844) calls for energy efficient renovation of existing buildings in the European Union as a means to reach climate goals. All member countries have to establish long-term strategies to ensure energy efficient renovation of all kinds of existing buildings, public as well as private, in which deep renovation with up to 60% lower energy use compared to pre-renovation levels are encouraged [1]. Despite these policy, actually few housing renovations are carried out in the EU [2] and they seldom have the expected high ambitions for energy efficiency [3]. Some of the main barriers for energy retrofit of housing are lack of knowledge, high costs, and split incentives regarding costs and benefits between landlords and tenants [4]. The social implications of deep energy retrofit has been highlighted in recent debates on low-carbon gentrification [5], and is probably a cause behind a trend towards more piecemeal renovation, which could jeopardize political energy objectives but also the technical status of housing [3].

While much research has focused on understanding public and private property owners' incentives for energy retrofit [4], few have explored the tenants' perspective. The tenants' involvement in the planning and decisions for retrofit can facilitate the process [6]. The tenants' active participation will also be necessary to reach actual energy savings and avoide rebound-effects effects linked to energy behaviour [7]. With the purpose of exploring the possibilities of a broader consensus for energy retrofit between property owners and tenants in multi-residential buildings, a research project (2018 – 2022) was initiated together with three large municipal housing companies in Gothenburg, Sweden. The three companies together own and manages almost 70.000 apartments in different age groups and locations. In the study, which is on-going, data is collected through interviews and questionnaires with tenants living in buildings which has been or will be renovated. So far more than 100 interviews have been carried out and 300 tenants have answered a questionnaire. While the study as a whole includes questions related to lived experience of renovation and the link to residential relocation [8], the purpose of this paper is to present a first analysis the tenants' views on energy retrofit. For this paper a selection of 27 interviews were used in which the topic of energy retrofit was specifically discussed with the tenants. Three core questions were discussed in relation to energy retrofit; Do you know if the renovation included energy preserving measures? What do you think of energy preservation on a

Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.
Published under licence by IOP Publishing Ltd

general level? Are you interested in a larger personal economic responsibility regarding heat and hot-water usage (this has traditionally been included in Swedish rents)?

2. Findings

Due to the ongoing status of the study several interviews are still being booked, transcribed and analyzed. Thus, the perspective of the 27 interview participants in this paper represents an early insight and analysis that may be expanded upon at a later stage of the project. In addition, energy retrofit relevant questions will be included in forthcoming surveys that are planned as a complement to the qualitative data gathered in the interviews. Based on the available interviews, three problematic topics in relation to energy retrofit were identified: individual costs of energy retrofit measures, communication, and individual reactions to charging of heating and hot-water (see 2.2, 2.3 and 2.4).

2.1. Distribution of participants

The gender distribution is relatively even among the 27 participants with 14 females and 13 males. Most of the participants fall within the younger age groups (i.e. 25-34 (10 participants) and 35-44 (13 participants)) whereas only a few are above the age of 45 (e.g. 4 participants above the age of 45). 18 of the 27 participants in the study are generally positive towards the idea of energy retrofit. In contrast, 6 participants are negative and 3 are passive (i.e. no opinion). Although it is too early to determine any statistically significant correlations the sample seem to suggest that the males in the study are negative on a larger scale than the women. Similarly, older respondents seem more likely to view energy retrofit in a negative light. In contrast, the younger participants and women especially seem more likely to view energy retrofit changes in a positive light.

2.2. The impact of personal incentives

Although most of the participants are positive towards the abstract idea of energy retrofit, when questioned further about their personal investment many seem to falter in their convictions thus indicating that while they agree, that such alterations and commitments are positive for society, they are not ready to be the first ones' who commit to such changes. For some tenants, the very concept of energy is very abstract, in particular the relationship between energy use and renovation, for example: the energy benefits of window replacement, needed to be explained by the researchers in several interviews.

For some of the participants perspective ones' willingness to invest into energy retrofit changes are closely tied to a sense of ownership and as the interviewees are all tenants, they tend to push responsibility to the company who own the building. The hindrance of personal incentive and ownership are illustrated in the following quote:

"*Oh, okay. I am not interested in that at all. Because I think, it is not my house, I think it is their affair. If I had owned the house then I would've payed more, but I don't want to pay more for someone else, for someone else's property even if I use it. I do pay rent to them already, that's why they have to pay, but I would've been down if we owned it ourselves, definitively…*" P74.

2.3. Successful communication is key

Renovations are complex projects that require a lot of effort from tenants and property owners. Based on the perspective presented by of some interviewees, communication has not always been successful. This has resulted in misinterpretations and even false claims amongst the tenants. Communication failure is particularly linked to energy retrofit because the need for such changes is not explicitly explained by the owners thus leaving the tenants to make their own explanation, one that is not always accurate. For instance, one interviewee stated that the raise in her rent was due to the new solar panels on the roof and not due to the renovated bathroom and new windows. The solar panels became a symbol of unfairness and economic injustice in her eyes which ultimately led to dissatisfaction with the renovation process.

"Yeah, they installed those solar things, that is why the rents have been so damned expensive." P66.

Another example of failed communication is the unhappiness proclaimed with towel dryers by several interviewees. The interviewees seem to believe that the towel dryers are an easy way for the owners to raise rent since it counts as a standard raising modification: this perspective is not without merit seeing as some of the interviewees had their bathroom radiator removed, as part of a major renovation, and replaced with a towel dryer. Because the owners left the tenants with no satisfactory explanation (e.g. that the towel dryers are effective at drying the bathroom after use thus preventing moisture damage) the tenants were left to come up with their own, mostly negative, conclusions.

2.4. The carrot or the whip?

The individual metering of heating and hot-water may seem normal in many countries, but for most of the apartments in the older Swedish housing stock, this consumption is included in the rent and not measured separately. Consequently, one way to improve the energy performance of the buildings is to limit the individuals' use of heating and hot-water by introducing individual metering and charging. The advantage for the tenants is that they get an incentive for lowering their energy consumption and also their running costs. However, the interviewees who had experience with individual charging of room heating and hot-water usage had different perspectives; in some cases, it co-aligned with the intended goal but in some cases resulted in a persecuted feeling amongst the tenants. The persecuted feeling is illustrated in the following quote:

"Na, well before it was even, and then it was harmony, but then they introduced individual or that you had to pay for hot-water, and I experienced that change very negatively. It felt like every time I took care of the dishes with hot-water I had to pay for it, and extra at that. So, it became a question of 'reducing' the hot-water usage, and it became such a thing that weighed on me all the time, it felt really inharmonious." P68.

Others welcomed the change and saw it as a healthy reminder that could provide them with an opportunity to save expenses, albeit at a low amount:

"For the awareness, I think. I mean of course it is a small carrot if you see that 'Oh! I got back 89 kroner.' Even if it might not be that much it is still some kind of awareness because it is possible to put on the tap and just let it flow when you are brushing your teeth for instance. So yeah, I think it's, it's that extra…" P85.

3. Discussion and conclusion

These first tentative results from this on-going study indicate that a share of the tenants in Swedish rental apartments are positive towards energy retrofit and the idea energy savings in their homes. However, it seems like this positive resource is not entirely taken advantage of.

Several of the interviewed tenants seem to have little knowledge of the actual link between energy use, the performance of buildings and energy retrofit measures. The impression is that the tenants have not been part of the discussions or plans for the energy retrofit, nor have they been informed about the implemented measures and in what way these will affect or benefit the individual. Instead, some of the energy saving measures are wrongly accused of being installed just for the sake of raising the rents and provide more income for the property owners. This problem seems to be related to failed communication: the owners have not clarified the distinction between standard raising alterations and energy retrofit. As a consequence, they also fail to bridge the knowledge gap that many tenants show about energy saving measure in housing. This also leads the tenants to come up with their own conclusions which may result in a feeling of animosity towards the often-visible energy alterations made in their home and/or building (e.g. solar panels or towel dryer).

The study also illustrates a discrepancy between being generally positive towards energy saving and actually contributing to it. In Sweden expenses like heat and hot-water have traditionally been included in the rent. Unsurprisingly, when the cost for energy suddenly will be charged, and as it

seems, extra for expenses that they previously took for granted might be hard to accept for some of the tenants, especially if their economic situation is already strained. The feeling of and a lack 'ownership' of these questions as a tenant was highlighted as barrier of such an approach. The ability to overcome barriers like ownership and make tenants see the value in energy retrofit for society at large despite 'only renting' is crucial if such alterations are to be implemented on a larger scale.

Since many tenants are unfamiliar with energy related questions and especially their own consumption, installing individual metering could highlight and gradually educate tenants, thus increasing familiarity which facilitates the transition from a collective to a personal responsibility-oriented focus. However, some interviewees find that the metering can be intruding on the private integrity. Although personal responsibility is the end goal, it might thus be beneficial to ease tenants into the idea of personal responsibility and investments. An increased awareness of ones' energy consumption can make the concept of energy retrofit more approachable and agreeable seeing as energy is no longer something abstract and 'out there' but concrete and familiar.

Earlier research has emphasised the importance to keep clear lines of communication with the tenants, in order to speed on the change processes and to avoid conflicts [8]. In Sweden, discussions with tenants in a renovation tend to revolve around standard raising measures, which will impact the tenants' personal economy, not on energy saving measures which normally do not affect the rent. The socio-economic impact of renovation thus seems to be prioritised over energy savings and the consequences, as shown in this study, is that the tenants in some cases create a negative image of energy retrofit and that their potential to contributing to achieving energy saving goals is not made use of. In conclusion, this paper points to a possibility to increase the awareness of energy saving among tenants and at the same time get a higher acceptance for energy retrofit through inviting the tenants to a dialogue about energy saving measures. The paper contributes to SDG 12, responsible consumption and production but also to SDG no poverty as a result of renovation, and more generally to SDG 11.

Acknowledgements
The research is financed through the Swedish Energy Agency, grant 49592-1, with co-finance from the Center for Management in the Building Sector and Framtiden Förvaltning AB.

References

[1] L. Castellazzi, P. Zangheri, D. Paci, 2016 Synthesis Report on the assessment of Member States' building renovation strategies, JRC Science for Policy Report, European Comission, Brussels.
[2] I. Artola, K. Rademaekers, R. Williams, J. Yearwood 2016 Boosting building renovation: What potential and value for Europe, Study ITRE Committee, Comm. by DG Intern. Policies Policy Dep. A. p 72.
[3] K. Mjörnell, P. Femenías, K. Annadotter 2019 Renovation Strategies for Multi-Residential Buildings from the Record Years in Sweden—Profit-Driven or Socioeconomically Responsible?, Sustainability. 11:6988.
[4] P.A. Jensen, E. Maslesa, J.B. Berg, C. Thuesen 2018, 10 questions concerning sustainable building renovation, Build. Environ. 143, p 130–137.
[5] S. Bouzarovski, J. Frankowski, S. Tirado Herrero 2018 Low-Carbon Gentrification: When Climate Change Encounters Residential Displacement, Int. J. Urban Reg. Res. 42:845–863.
[6] B. Ástmarsson, P.A. Jensen, E. Maslesa 2013, Sustainable renovation of residential buildings and the landlord/tenant dilemma, Energy Policy. 63:355–362. doi:10.1016/j.enpol.2013.08.046.
[7] R. Galvin 2014 Making the 'rebound effect' more useful for performance evaluation of thermal retrofits of existing homes: Defining the 'energy savings deficit' and the 'energy performance gap,' Energy Build. 69:515–524. doi:https://doi.org/10.1016/j.enbuild.2013.11.004.
[8] P. Femenías, L. Jonsdotter, J. Forsemalm, E. Punzi, E. Bogdanova, C. Thodelius, K. Granath, 2019 Residential movements in connection to renovation of rented multi-residential housing: A pilot study, in: IIOP Conf. Ser. Earth Environ. Sci. 297 012014, Helsinki, Finland.